

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for manufacturing a glass substrate for an information recording medium, the method comprising: ~~including a step for~~ forming a texture on a main surface of a disc-shaped glass plate by supplying an abrasive agent containing an abrasive grain to the main surface and slidably contacting the main surface with an abrasive member, ~~the method being characterized by:~~ ; and oscillating either one of the abrasive member and the glass plate in a radial direction of the glass plate with respect to the other one of the abrasive member and the glass plate while rotating the glass plate so that the abrasive grain repeatedly ~~cyclically~~ draws a ~~one-stroke~~ closed track that intersects in at least three locations on the main surface of the glass plate.
2. (Currently amended) The manufacturing method according to claim 1, ~~characterized in that~~ wherein a frequency F (Hz) in Hertz of the oscillation and a rotation speed R (~~min⁻¹~~) in revolutions per minute of the glass plate are determined so that the rotation speed R is outside a range of (F \times 60) \pm 5.
3. (Currently amended) The manufacturing method according to claim 1 ~~[[or 2]],~~ ~~characterized in that~~ wherein the ~~one-stroke~~ closed track includes at least five intersections.
4. (Currently amended) The manufacturing method according to ~~any one of~~ claim[[s]] 1 ~~[[to 3]],~~ ~~characterized in that~~ wherein the frequency of oscillation is greater than 0 Hz but 20 Hz or less.

5. (Currently amended) The manufacturing method according to ~~any one of~~ claim[[s]] 1 [[to 4]], ~~characterized in that~~ wherein the rotation speed is 240 to 540 ~~min⁻¹~~ revolutions per minute.

6. (Currently amended) The manufacturing method according to ~~any one of~~ claim[[s]] 1 [[to 5]], ~~characterized in that~~ wherein the oscillation has a stroke of ~~the oscillation~~ is 0.5 to 2 mm.

7. (Currently amended) The manufacturing method according to ~~any one of~~ claim[[s]] 1 [[to 6]], ~~characterized in that~~ wherein the abrasive member is a roller made of an elastic material having a duro hardness, as defined by ISO 7627-2, of 40 to 90.

8. (Currently amended) The manufacturing method according to ~~any one of~~ claim [[s]] 1 [[to 6]], further ~~being characterized by~~ comprising:
scrubbing the main surface of the glass plate with a scrubbing material in which a 100% modulus, as defined by JIS K7113, is 2.9 to 39.2 MPa after said forming a texture.

9. (Currently amended) The manufacturing method according to ~~any one of~~ claim[[s]] 4 [[to 6]], ~~characterized in that~~ wherein the frequency of oscillation is greater than 0 Hz but 4 Hz or less when an outer diameter of the glass plate is 48 mm or less, and the frequency of oscillation is greater than 4 Hz but 20 Hz or less when the outer diameter is greater than 48mm.

10. (Currently amended) A method for manufacturing a glass substrate for an information recording medium, the method ~~being characterized by~~ comprising the steps of:
preparing a disc-shaped glass plate having a main surface and a central circular hole; and

forming on the main surface a texture including a plurality of grooves, each extending along a closed curve that intersects in at least three locations around the central circular hole.

11. (Currently amended) The manufacturing method according to claim 10, ~~characterized in that~~ wherein the step for forming a texture includes:
supplying an abrasive agent containing an abrasive grain to the main surface of the glass plate;
pressing an abrasive member against the main surface of the glass plate;
cyclically oscillating either one of the glass plate or the abrasive member in the radial direction of the glass plate; and
rotating the glass plate at a constant speed.

12. (Currently amended) The manufacturing method according to claim 11, ~~characterized in that~~ wherein the step for forming a texture includes determining the rotation speed, frequency of oscillation, and stroke of oscillation of the glass plate.

13. (Currently amended) The manufacturing method according to claim 12, ~~characterized in that~~ wherein the stroke of oscillation is 0.5 to 2mm, and the frequency F (Hz) in Hertz of oscillation and the rotation speed R (~~min⁻¹~~) in revolutions per minute of the glass plate are determined so that the rotation speed R is outside the range of $(F \times 60) \pm 5$.

14. (Currently amended) The method of manufacturing according to claim 13, ~~characterized in that~~ wherein the frequency of oscillation is changed in accordance with an outer diameter dimension of the glass plate.

15. (Currently amended) A glass substrate for an information recording medium, the glass substrate comprising having a main surface on which a texture is formed, ~~characterized in that:~~ the main surface ~~has~~ having an arithmetic mean roughness R_a , as measured by an atomic

force microscope, of 0.5 nm or less, and the main surface ~~has~~ having a microscopic undulation height NRa of 0.2 nm or less, as measured by a three-dimensional surface structure analyzing microscope using light having a measuring wavelength of 0.2 to 1.4 nm.

16. (Currently amended) The glass substrate according to claim 15, ~~characterized in that wherein:~~

the texture includes a plurality of projections; and in a region having a predetermined reference area in the main surface, when setting a hypothetical reference plane traversing the plurality of projections so that a total value of a cross sectional area of the plurality of projections is 50% relative to the reference area,

a first hypothetical plane parallel to the main surface and traversing the plurality of projections so that the total value of the cross sectional area of the plurality of projections is 0.4% relative to the reference area is separated from the hypothetical reference plane by a first distance,

a second hypothetical plane parallel to the main surface and traversing the plurality of projection so that the total value of the cross sectional area of the plurality of projections is 0.01% relative to the reference area is separated from the hypothetical reference plane by a second distance, and

the difference between the first distance and the second distance is 0.01 to 1.0 nm.

17. (Currently amended) A disc-shaped glass substrate for an information recording medium, the disc-shaped glass substrate comprising: ~~including a central circular hole and a main surface having a central circular hole, characterized by;~~ and a texture including a plurality of grooves, each extending along a closed curve that intersects in at least three locations around the central circular hole, formed on the main surface.

18. (New) The manufacturing method according to claim 1, wherein said closed track forms intersections therein and the intersections are equally distributed on the main surface of the glass plate.